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# Combat Crew

strategic air command

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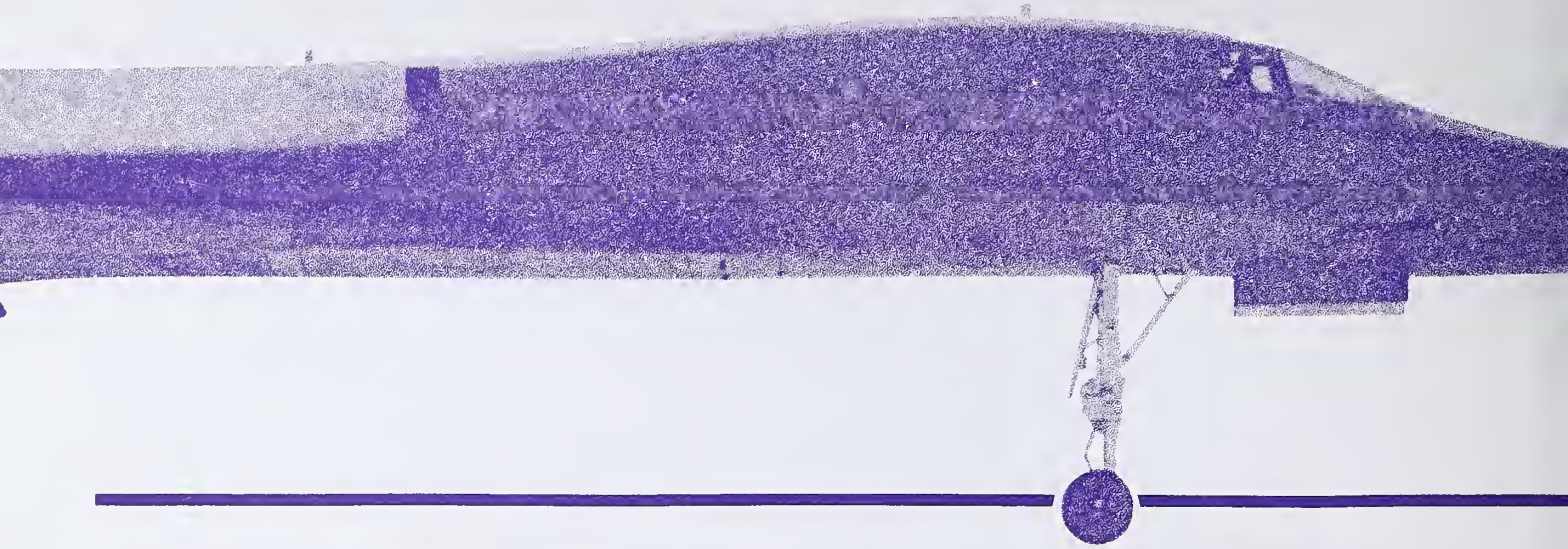
## SAC ACCEPTS FIRST B-1B

JUNE 1985
★★★★



# Aircraft Commander Respo

Maj Gen Robert D. Beckel
HQ SAC DCS/Operations

Recently, as I reviewed the requirements and selection criteria for B-1B aircraft commanders, I reminisced about my experiences as an aircraft commander and the responsibilities associated with that job. Sobering obligations are associated with becoming an aircraft commander. The aircraft commander is the critical element in the safe, successful accomplishment of the mission.

As you progress through your Air Force career, you will quickly begin to realize that an aircraft commander is more than just a proficient pilot who has met the minimum flying time required to upgrade. As I look back, I find that my experiences as an aircraft commander, whether in a single seater or with a crew, laid the ground work for progressing to higher levels of command. It was a learning experience that required more than good flying ability — it required leadership and management skills.

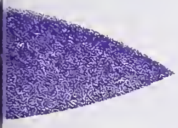
Tech data for our aircraft and Air Force/SAC regulations are very clear as to the aircraft commander's authority. The responsibility for the aircraft, crew and passengers is the pilot's, regardless of rank/duty position of other crewmembers or passengers. While an entire crew strives to successfully complete the assigned mission, the pilot must insure that safety is not compromised and governing directives are complied with.

To gain a clear vision of the aircraft commander's responsibilities, one must remember that our aircraft commanders are frontline, battlefield commanders. They represent the last crucial link in the chain of command that insures that military force is effectively applied, in time of war, at the direction of the President. In times of peace, they are responsible for insuring that their crew is ready and able to perform when directed.

Aircraft commanders, regardless of experience levels, must be mission oriented — not just in the cockpit, but in every activity associated with the profession. Beyond the "stick and rudder" requirements, aircraft commanders have numerous other responsibilities to insure the crew is prepared to meet the challenges of combat. Some of these responsibilities include:

**1. Safety.** The safe completion of each training mission is paramount. Your life and the lives of your crewmembers and passengers rely on your ability and judgment.

**2. Training.** You are responsible for the quality of training received during each training mission. You have a duty to your crew, as well as to the taxpayers, to efficiently and effectively manage



# nsibilities

the precious training resources entrusted to you. You must act as an advocate for your crew insuring that their special training needs are met.

**3. Counseling.** Your responsibilities for your crewmembers extend beyond the flying arena. You must be a counselor, both in career and personal matters. You are responsible for crew morale. You must mediate between crewmembers when a professional or personal conflict arises. You must be considerate of personal needs, spousal concerns and build an environment which fosters crew unity.

**4. Professionalism.** You are responsible for the professional health of the crew. You must praise strengths and correct weaknesses. Help them become stronger, more effective officers and NCOs. You must insure that they meet military standards while providing them an environment in which they can develop their leadership skills. You must also assure that they receive just rewards for a job "**Well Done**."

These are heavy responsibilities. The rewards, however, more than make up for your efforts. As the aircraft commander, you are learning and putting into practice many of the leadership and management principles that are necessities at any level of command. Beyond that, you are grooming SAC's future crew commanders.★★

# Combat Crew

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## ON OUR COVER

On 29 June 1985, SAC and the 96th BMW will accept delivery of the first operational B-1B. For more information on becoming a B-1B crewmember, turn to page 4.

SACRP 127-1 VOL. XXXV NO. 6 JUNE 1985

COMBAT CREW is an internal publication of the Strategic Air Command with the primary purpose of promoting safety. The contents of this magazine are informative and not to be considered as directive in nature. Facts, testimony and conclusions of all mishaps printed herein may not be construed as incrimination under Article 31 of the Uniform Code of Military Justice. All names, dates and places used in conjunction with mishap stories are fictitious. Written permission must be obtained from Headquarters, Strategic Air Command before any material may be reprinted by other than U.S. Air Force organizations. Use of funds for printing this publication has been approved by Hq. USAF. Distribution FX, controlled by IGFE SAC units submit distribution requests through local PDO. Reader to copy ratio 10:1. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

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# B-1B Aircrew Selection Update

Maj John Priecko
Chief, Bomber/Reconnaissance Assignments
HQ SAC

*On 29 June 1985, this country's newest bomber weapon system in over 15 years will become a reality as the Strategic Air Command and 96th Bomb Wing accept delivery of the first operational B-1B. It will be 30 years to the day since the first B-52 was delivered to the SAC inventory back in 1955. The B-1B, Dyess AFB and the 96th Bomb Wing are already the center of attention and will be for years to come.*

If you haven't been there recently, Dyess has changed dramatically over the past few months. Numerous new facilities are under construction and many new faces are reporting for duty. Since July 1984, 118 B-52 and FB-111 instructors have been selected for duty as members of the recently formed 4018th Combat Crew Training School (CCTS). In position, or soon to be on their way, are 54 flightline instructors, 46 Academic Instructors (AIs) and 18 Curriculum Development Managers (CDMs).The 4018th officially began operations 15 March 1985; and CCTS crews are now training

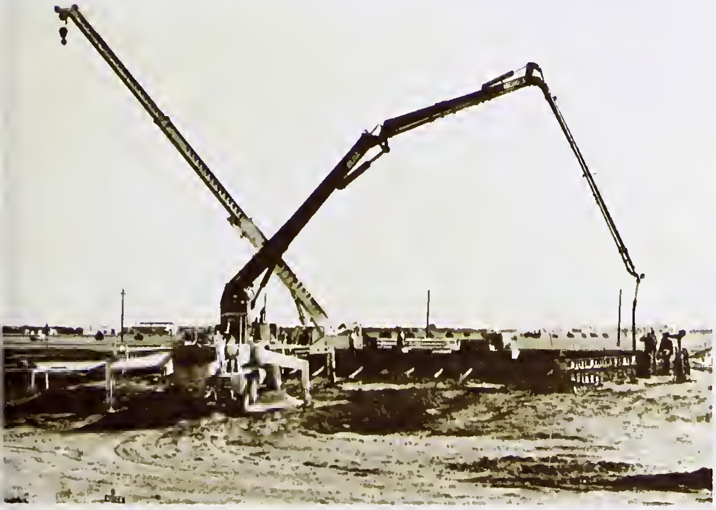
Colonel Paul H. Froeschner, Dyess AFB Deputy Commander for Operations, discusses the results of a B-1 test flight with Major Larry M. Jordan, Chief of the B-1 Operations Division at Edwards AFB. Major Jordan will teach the first B-1B CCTS instructor pilots how to fly the aircraft.

in preparation for the first class of students in March of next year. Those 118 B-1B CCTS instructors will have the demanding job of teaching others to fly the B-1B.

A three-phase effort to select the first group of aviators for the operational B-1B squadron at Dyess begins 1 July 1985. The overall process is similar to last year's selection of B-1B CCTS flightline instructors (less the individual interviews and pilot T-38 flying evaluations).

**Phase I** (1-26 July) is identification of eligibles. They will be determined through an objective computer program based on CINCSAC/CC approved B-1B Aircrew Selection Criteria.

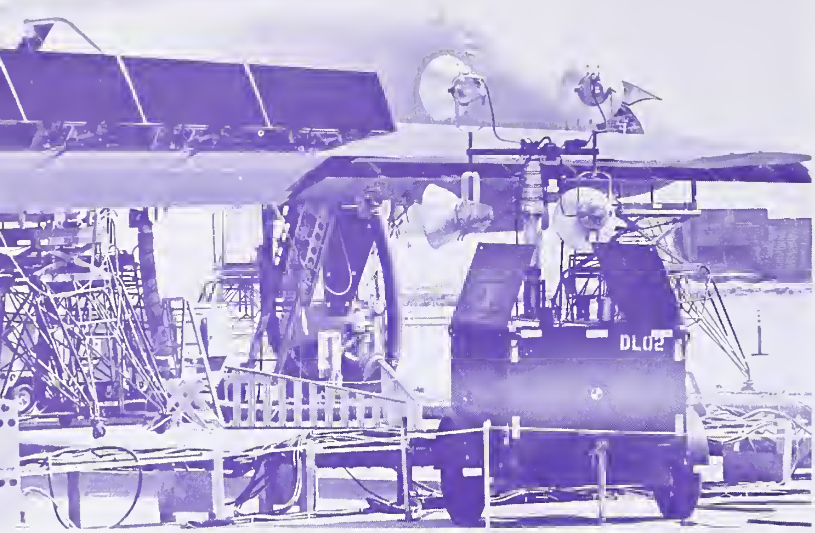
Construction continues at Dyess AFB on the B-1 CCTS facility. The two story structure will become the "schoolhouse" for B-1B ground training, academics and administration.



The B-1 taxies clear of the active runway at Edwards AFB following a demanding eight hours plus flight test mission.

Majors Jack J. Richard (left) and Larry C. Kruse (right), two of the first B-1B CCTS instructor pilots, get their first look at the aircraft interior in a cockpit mockup at Rockwell facilities in El Segundo.

**Phase II** (27 July - 6 September) focuses on wing inputs. Officer Personnel Briefs (OPBs) on all the candidates identified in Phase I will be forwarded to unit commanders for their evaluation. Wing commanders will submit letters of recommendation on only the top candidates. Individuals will be rank ordered by crew position (for example: Maj Smith is rated number 3 out of 10 aircraft commanders recommended). Unit commanders will also submit individual flight records, including: last two years AF Fms 8, complete AF Fm 942 and an AFORMS Flying History Report on each candidate. Additionally, each individual will complete a B-1B volunteer statement. Candidates will be encour-



B-1A aircraft number four, modified with B-1B systems, undergoes maintenance and contractor check-out on the Edwards flightline prior to a test flight the following day.

aged to use this to communicate directly with the selection board.

**Phase III** (7 September - 31 October) is the formal board process. It begins with pre-board screening as wing inputs are reviewed and consolidated with command records, Officer Personnel Briefs and Forms 90. A nine-member board will convene at HQ SAC (30 September - 4 October) to make final selections. Candidates will be scored on a six to ten point scale, much like a promotion board. As it was for the B-1B CCTS selection process last year, competition will be keen. Post board coordination will follow as results are reviewed and approved by the numbered air force commanders and CINCSAC/CC prior to release (approximately 1 November 1985).

## DYESS B-1B AIRCREW SELECTION CRITERIA

- Minimum flight experience requirements:
  - **Pilots**
    - 1800 total flying hours
    - 3 years in a SAC weapon system
    - 18 months as an aircraft commander
  - **Copilots**
    - 750 total flying hours
    - 1 year in a SAC weapon system
  - **RNs/OSOs**
    - 1500 total flying hours
    - 3 years in a SAC weapon system
  - **EWs/DSOs**
    - 1000 total flying hours
    - 2 years in a SAC weapon system
- **General Requirements:**
  - No current deferments (no passovers in present grade)
  - No negative quality force indicators or derogatory assignment availability codes (e.g., alcohol/drug abuse, Article 15, Unfavorable Information/Digest File, etc.)
  - Must be a B-52 or FB-111 aircrew or staff member with an Aviation Service Code indicating the individual is a "flyable resource"

Selectees should be on orders by 1 December 1985 to report for training at Dyess from March through May of 1986. Sixteen crews will be selected (14 from B-52 resources and 2 with FB-111 experience). A total of 64 individuals will be chosen (16 each: aircraft commanders, copilots, offensive systems officers, and defensive systems officers). Alternates will also be identified to be used to backfill B-1B CCTS flightline, AI and CDM vacancies as required.

Meanwhile, the effort to identify candidates for B-1B aircrew and ops staff duty at Ellsworth AFB is already underway. The Ellsworth B-52 drawdown begins in September 1985 with the first B-1B scheduled to arrive in November of 86. The selection process to fill out 44 Ellsworth B-1B aircrews will take place in early CY 86 with the initial crews reporting for training at Dyess beginning in June 1986.

While the first production B-1B isn't quite in our hands, it soon will be, culminating years of determined efforts by thousands of people, and ushering in a new era in this nation's strategic nuclear deterrent capability.

The initial cadre of B-1B CCTS instructors along with members of the Dyess AFB wing staff talk aircraft systems and design considerations with Rockwell engineers during a plant operations orientation in El Segundo, Calif.

B-1 Photos by Maj John P. Priceko

# What is the HETF?

Capt Anthony R. Johnson
4 ACCS, Ellsworth AFB

Have you ever heard this over your UHF radio? "Grayson, this is Hill Test. We are ready for test initiation number 74. This will be an all-call enable to Wing III, Squad 2 on my mark . . . 5, 4, 3, 2, 1, mark."

This terminology is associated with the Hill Engineering Test Facility (HETF). Since January 1971, HETF I, II, and the Engineering Test Facility (ETF) located at Hill AFB, Ogden, Utah, have been participating in the Airborne Launch Control System (ALCS) test program. Prior to 1971, tests at Vandenberg AFB consisted of SAC crews aboard EC-135 aircraft sending commands to launch Minuteman missiles. This operation was very expensive since the launched missiles were not recoverable. As a result, these test missions did not occur often and prompted SAC to request Ogden Air Logistic Center to support the ALCS test program.

As with all ALCS tests, the primary mission is to provide data to assess the reliability of the ALCS as an integral part of the Minuteman weapon system. In addition, these tests allow SAC to analyze and rectify equipment deficiencies; verify the proper operation of the system after hardware, software, or procedural changes; and to provide baseline data with which changes can be compared. The importance of the Minuteman ALCS necessitates continued testing and development to gain a solid data base on all aspects of ALCS operations.

All ALCS configured aircraft, besides performing their primary Command Control and Communications functions, are tasked with providing an alternate launch capability for the Minuteman missile force. With the HETF, missile tests are conducted in an environment simulating an operational site under conditions of alert, prelaunch, and launch with the capability to electronically duplicate the functions of either a complete Minuteman II or Minuteman III missile squadron. The operationally configured HETF I, II, and ETF test complexes allow ALCS equipped aircraft to generate all the commands available from the preparatory launch command to the automatic launch command, i.e., an all-call enable and two execute launch commands.

The HETF I facility consists of an operationally configured Minuteman II (Wing IV) missile complex that includes a launch control facility and launch facility (silo and missile). Within the test complex is a squadron data simulator that is an electronic duplication of an operational missile squadron. The operational hardware is fully instrumental and provides digital or analog data on any system, subsystem, or component. The HETF II complex serves essentially the same function with the Minuteman III (Wings I, III, V, and VI) missile. It is designed to give maximum simulation of the equipment and environment found at an operational site, providing accurate and complete data as tests are being conducted. Similarly, the ETF uses computer simulation instead of a ground test missile. These three intricate complexes facilitate problem resolution and improve the operational capabilities in both the airborne and ground environments. An inherent feature of the HETF is to allow airborne crew members "real world" coordination for mission accomplishment.

An ALCS-equipped EC-135 crew consist of a flight crew (pilot, copilot, navigator, and boom operator), two radio operators, an inflight maintenance technician, and two airborne missile operations officers. For HETFs, an airborne test conductor is also included. Each crewmember is responsible for accomplishing various aspects of the test. The flight crew is responsible for safety of flight and providing a constant plot of the aircraft's position at particular times throughout the test. The radio operators and inflight maintenance technician insure the UHF radio transmitters are prepared for communications and the generation of ALCS commands. The airborne missile crew under the supervision of the airborne test conductor is tasked with initiation of ALCS commands. To provide maximum use of allotted flying time, the number of commands to be initiated is usually over 100 which equates to about an eight-hour mission. In addition, the airborne test conductor is also responsible for the loading of the special HETF tapes into the ALCS equipment enabling the test facilities to process commands. This is done three hours before takeoff and includes a comprehensive weapon system checkout to verify proper equipment operation. Once airborne, the test conductor insures successful mission accomplishment and also maintains the radio net for coordination with the ground test conductor.

All ALCS command initiations are controlled by the ground test conductor. He/she will verify weapon system operation status before the ALCS aircraft arrives in the orbit area. Transmission of the ALCS test commands will be initiated on the test conductor's mark. The sequence of test commands will be in accordance with the specific HETF test plan agenda, appropriate fragmentary order, and/or as requested by HQ SAC.

The HETF is a unique testing complex established by the Air Force to test sophisticated systems and equipment to improve the operational capability of inventory material. Testing can be accomplished under "operational realism" conditions without any disruption to missiles on alert. Although it is perhaps not as well known as a Glory Trip, an operational test launch of an ICBM, or Simulated Electronic Launch Minuteman (SELM), the functions of the HETF are just as vital in determining the credibility and reliability of our deterrent force. So if you hear a countdown for an all-call enable on your radio, the balloon has not gone up, it is just the HETF doing business as usual.

# JUNE 1950 — JUNE 1985

Ken Maassen, Associate Editor

**Okay, trivia fans, here's this month's question.**

**Q. What's the oldest Air Force major command safety publication?**

**A. Combat Crew magazine, of course.**

Shame on you if you didn't know the answer. For the past 35 years Combat Crew has been aiding in mishap prevention. This venerable warhorse of a magazine was first published in June 1950 at the direction of General Curtis E. LeMay, then CINCSAC. In November of that year, the magazine was retitled **"Combat Crew"** from the original title of **"Professional Pilot,"** and has been going strong ever since.

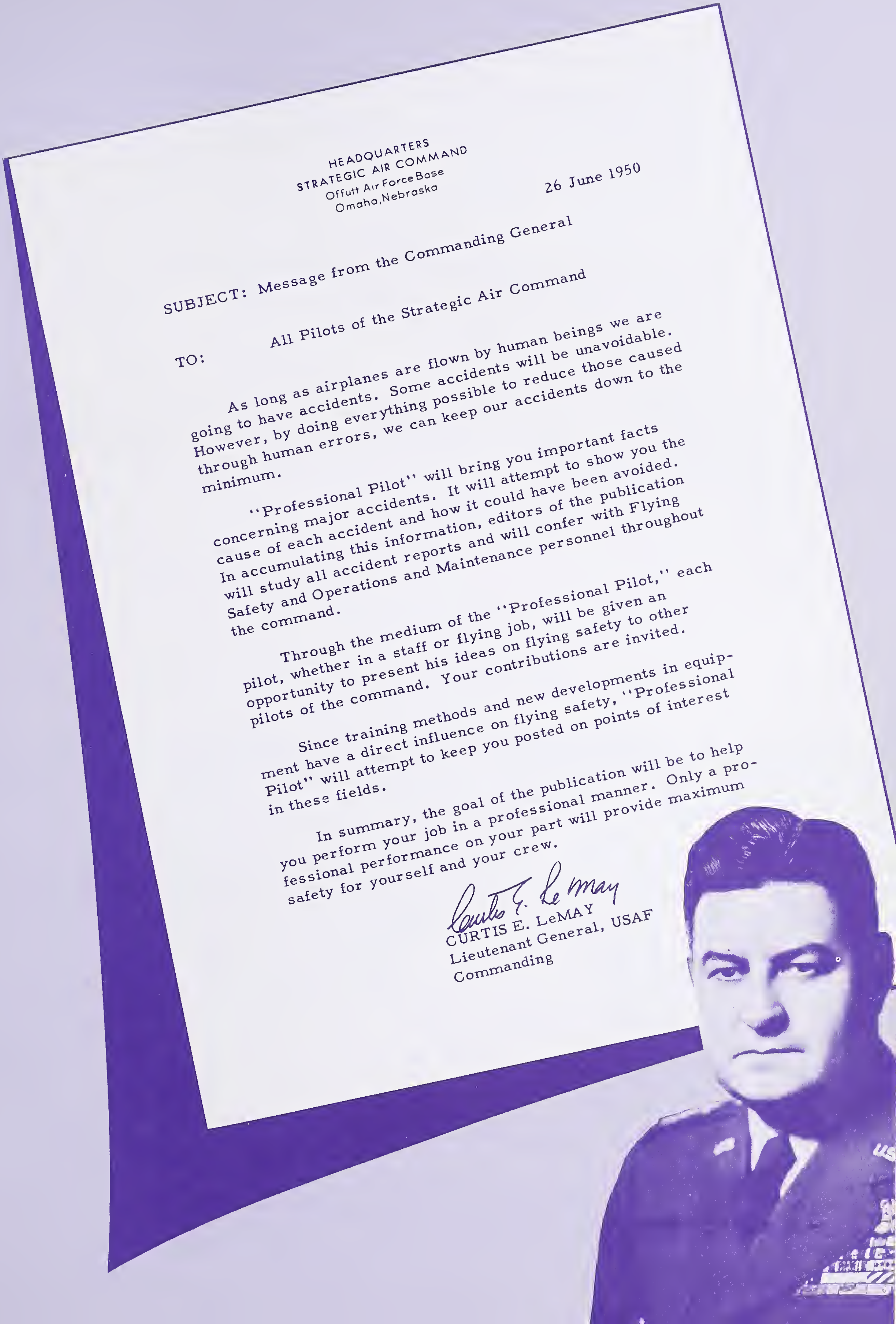
Then as now, Combat Crew has been devoted to mishap prevention, and recognition of outstanding crews, maintenance people and unit safety records. Today, over 80,000 people throughout SAC, other Air Force commands, and DOD components read the magazine each month.

As mentioned before, Combat Crew is the oldest Air Force major command safety publication. It was first published as a supplement to the Air Force Safety magazine (Flying Safety). This magazine and the TIG Brief are the oldest continuously printed Air Force safety publications. The magazine is edited in an office in the old hospital building at Offutt AFB. The first office was located in the old Martin building at Offutt, later moved to the headquarters building, and then in 1966 settled in its present location. The magazine originally began under the Office of Special Projects, but was soon transferred to the safety directorate, DO, in 1950.

In the early days, funds were provided on a quarterly basis and the staff was never sure whether they would be publishing in the next quarter or not. Today, the magazine is published by the SAC IG headed by Brigadier General Lee Butler, and under the supervision of the Director of Safety, Colonel Charles J. Wingert. Actual printing of the 8,000 copies per month is accomplished through government contract.

The magazine staff of four rely heavily on the articles and ideas contributed by aircrew and missile crewmembers, maintenance people, staff personnel and safety folks throughout the command. The underlying theme of Combat Crew through the years has been that it belongs to the SAC crewmembers and material should be of interest to them. Of course, the safety theme has been paramount and will continue to be so in the future.

As Combat Crew celebrates its 35th anniversary, the staff encourages you to help make year 36 the best yet. If you have a story to tell, please share it with the rest of us. A recent reader survey indicated that our most popular articles are of the **"there I was . . ."** variety. Who knows, that hair raising incident that you skated through recently may trigger our thoughts and keep us from being involved in a similar situation. If you feel threatened about **"owning up"** to some less than smart move on your part, send along your experience anyway — unsigned. Some of our most thought provoking articles have been written by a crewmember named A-Non-E-Mouse. Procedures for submitting articles are found on page 7 of AFR 127-2/SAC Sup 1, but if you have further questions or would just like to discuss an idea for an article, feel free to call us at AV 271-2620/6221.



HEADQUARTERS
STRATEGIC AIR COMMAND
Offutt Air Force Base
Omaha, Nebraska

26 June 1950

SUBJECT: Message from the Commanding General

TO: All Pilots of the Strategic Air Command

As long as airplanes are flown by human beings we are going to have accidents. Some accidents will be unavoidable. However, by doing everything possible to reduce those caused through human errors, we can keep our accidents down to the minimum.

"Professional Pilot" will bring you important facts concerning major accidents. It will attempt to show you the cause of each accident and how it could have been avoided. In accumulating this information, editors of the publication will study all accident reports and will confer with Flying Safety and Operations and Maintenance personnel throughout the command.

Through the medium of the "Professional Pilot," each pilot, whether in a staff or flying job, will be given an opportunity to present his ideas on flying safety to other pilots of the command. Your contributions are invited.

Since training methods and new developments in equipment have a direct influence on flying safety, "Professional Pilot" will attempt to keep you posted on points of interest in these fields.

In summary, the goal of the publication will be to help you perform your job in a professional manner. Only a professional performance on your part will provide maximum safety for yourself and your crew.

Curtis E. LeMay
CURTIS E. LeMAY
Lieutenant General, USAF
Commanding

# Is This as Good as We Get?

Maj Gary R. Rockefeller
96 BMW, Dyess AFB

I'm about to leave the safety business for the second time, as I depart on yet another PCS. When I first became a flight safety officer, in 1974, a quick review of USAF and SAC mishap statistics revealed an interesting and depressing phenomenon. (See fig 1). In the post-Korean conflict environment the high number of accidents per 100,000 flying hours rapidly became unacceptable as costs soared and fatalities became harder to avoid. The USAF and the major commanders took action to set up, expand and refine mishap prevention programs, with dramatic results. While the cost of an aircraft mishap continued to climb, the number of mishaps and the rate dropped to a stable level, and the SAC statistics are impressive compared to the rest of the commands. (See fig 2). Still, the nagging question remains, "Is this as good as we get?"

For over a decade now, SAC's mishap experience has been all too predictable. "One of each per year" — that's what we could expect to lose in a class A aircraft mishap. One B-52, one tanker, one FB-111. Destroyed or severely damaged, usually fatal to some or all aboard. Our record, viewed in this light, isn't all that great. Oh, we've had some years when there was no B-52 or FB-111 crash, and several with no tanker lost, but would you believe there has never been a calendar year in which SAC has not sustained the loss of at least one of its large airframes? Still, 1978 was a very good year (see fig 3 on page 12).

**"The aircraft doesn't know if you're young, old, TDY, hungover, passed over, or the state of your love life. It doesn't care, either."**

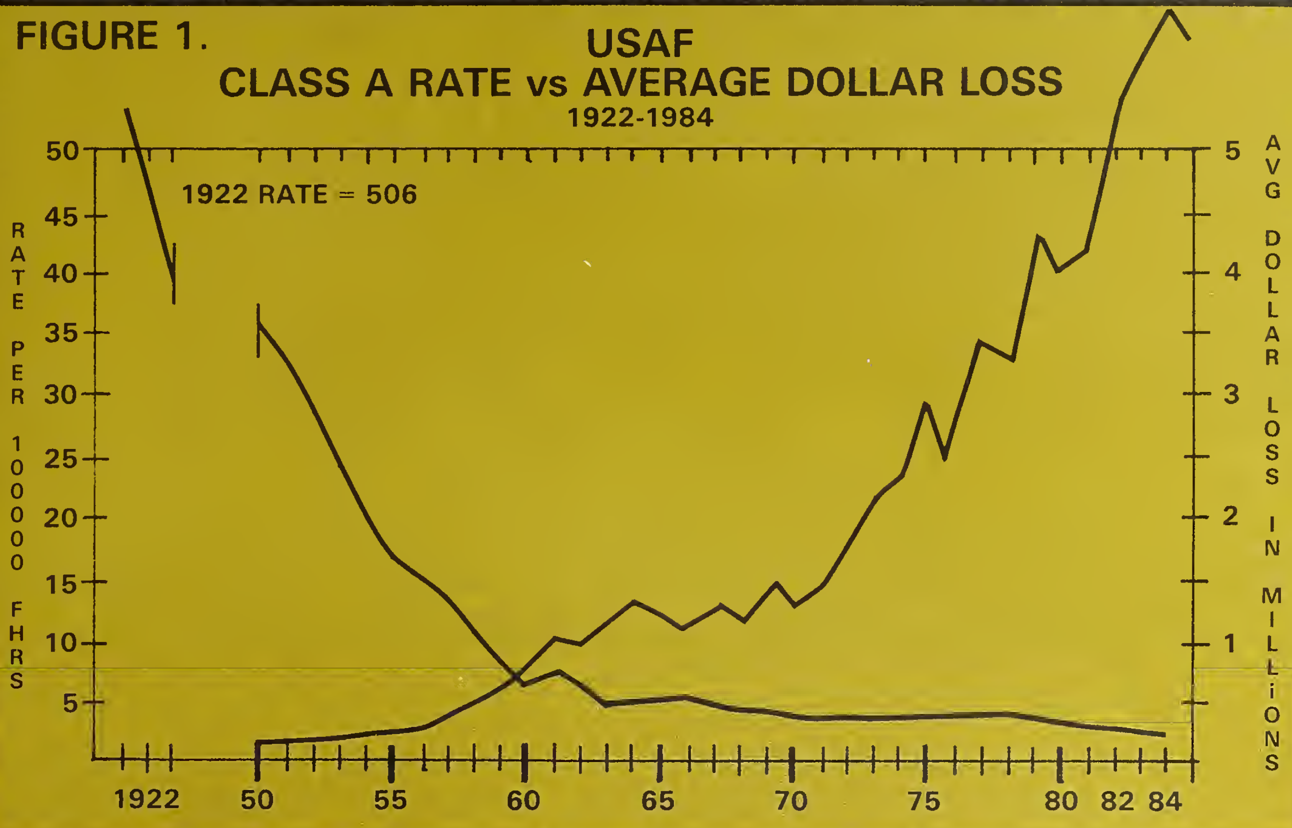
Losses of this magnitude represent a significant degradation of combat capability, in terms of both airframes and trained personnel lost. The human costs are incalculable.

At the same time the number of mishaps leveled off and remained stable, another phenomenon has become apparent. In the earlier days of aviation, mishaps occurred largely because the machine failed the man. Engines quit, parts failed, and the machine became unflyable. But as aircraft become more sophisticated, they become safer. Design deficiencies are avoided, navigation equipment becomes more reliable, and the "bugs" get worked out of our fleet. Today, the man fails the machine as often as the machine fails him. The safety pros call it "operations factors" when an airworthy machine is severely damaged or crashed because of human errors. I call it "people factors." (See fig 4 on page 12.)

So if we're going to improve our record and cut down the number of frequency of class "A" mishaps, it would appear we're going to have to become better, or at least smarter, flyers. "People factors" mishaps, we control. We control how well we follow the guidelines in the flight manuals and directives. Most of those guidelines have been written in blood.

We all know there are going to be days where nothing goes right. Mission planning day was fragmented, the airplane has open cowlings and workers all over it when you arrive, you get off two hours late, and that no-notice evaluator just keeps taking notes. Here's

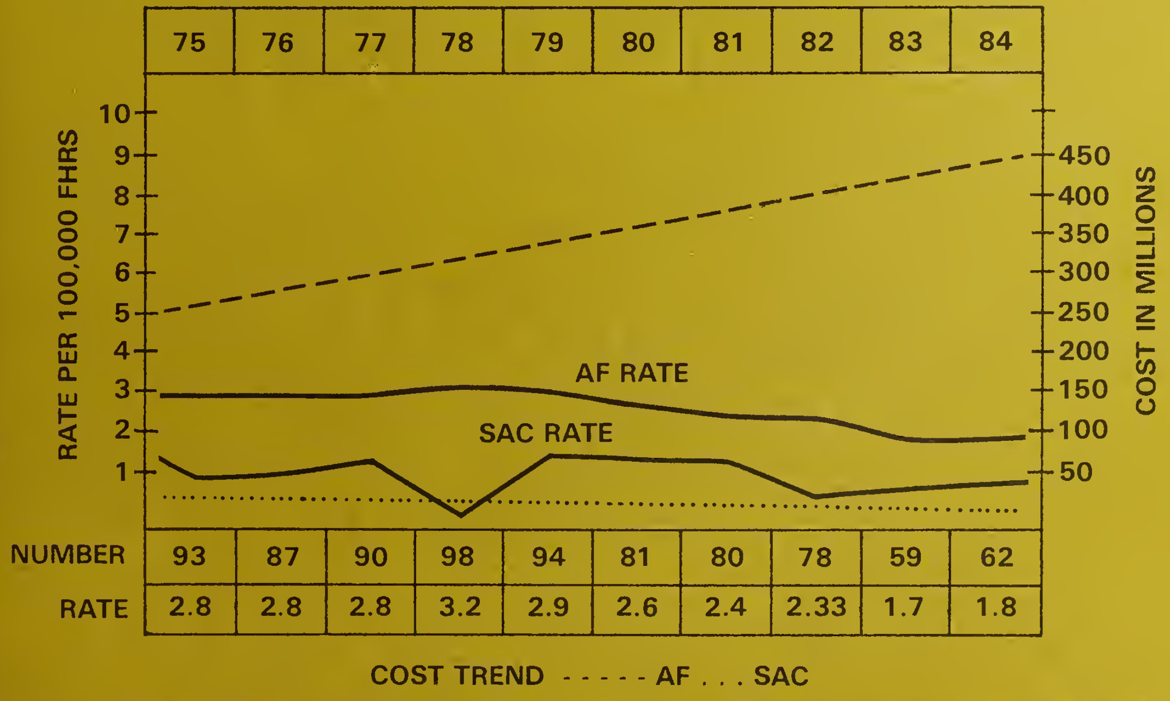
FIGURE 1.



USAF
CLASS A RATE vs AVERAGE DOLLAR LOSS
1922-1984

FIGURE 2.

USAF/SAC CLASS A FLIGHT MISHAPS/RATES/COSTS



*Cont'd on next page*

FIGURE 3.

## SAC MAJOR MISHAP COMPARISON

| | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 |
|---|---|---|---|---|---|---|---|---|---|---|
| B-52 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2 |
| E-4A/B | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 135 | 1 | 2 | 1 | 0 | 3 | 1 | 2 | 0 | 0 | 0 |
| KC-10 | | | | | | | 0 | 0 | 0 | 0 |
| FB-111A | 2 | 2 | 2 | 0 | 1 | 2 | 1 | 0 | 1 | 0 |
| TR-1* | | | | | | | | | | 1 |

FIRST FB-111A DELIVERY OCT 69
FIRST KC-10 DELIVERY MAR 81
FIRST E4A/B DELIVERY NOV 75
*FIRST ACCOUNTABLE 84

FIGURE 4.

## SAC FLYING MAJOR/CLASS "A" MISHAPS ($500,000 OR MORE)

| CALENDAR YEAR | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 |
|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL MISHAPS | 4 | 4 | 4 | 1 | 5 | 4 | 4 | 2 | 2 | 3 |
| FLYING HOURS (100,000) | 4.2 | 3.9 | 3.7 | 3.6 | 3.6 | 3.4 | 3.5 | 3.5 | 3.3 | 3.4 |
| RATE | 0.96 | 1.03 | 1.09 | 0.28 | 1.41 | 1.18 | 1.15 | 0.58 | 0.60 | 0.89 |
| CAUSE FACTORS | | | | | | | | | | |
| OPERATIONS | 3 | 4 | 2 | 1 | 5 | 3 | 4 | 1 | 1 | 1 |
| LOGISTICS | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| OTHER | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 1 | 1 | 1 |
| FATALITIES | 7 | 22 | 10 | 5 | 7 | 2 | 14 | 9 | 7 | 2 |

FIGURE 5.

SAC MAJOR MISHAP COMPARISON
(NUMBERS)

| | 82 | 83 | 84 | 20 YEAR TOTAL (64-84) |
|---|---|---|---|---|
| B-52 | 2 | 1 | 2 | 71 |
| KC-135 | 0 | 0 | 0 | 40 |
| FB-111 | 0 | 1 | 0 | 11 (SINCE 1970) |
| TR-1 | 0 | 0 | 1 | |
| RATE | | | | |
| B-52 | 1.6 | 0.96 | 1.9 | |
| KC-135 | 0 | 0 | 0 | |
| FB-111 | 0 | 5.6 | 0 | |
| TR-1 | 0 | 0 | 23.6 | |
| SAC | 0.58 | 0.61 | 0.89 | |
| USAF | 2.33 | 1.73 | 1.8 | |

kindly old Doctor Rocky's prescription for surviving such days:

- PLAN SMART
- KNOW YOUR SYSTEMS
- TRAIN SMART
- FLY THE AIRCRAFT

**PLAN SMART.** Review the "killer" areas common to all flights: takeoff and landing performance; high terrain where it counts, on departure and approach (include your alternate), and low level; fuel usage, including which tanks it'll be in after AR and low level; weather at takeoff, landing, alternate, enroute, including a backup plan for when it worsens. There is no such thing as a routine mission. Check these things every flight.

**KNOW YOUR SYSTEMS.** I don't mean the "gotcha" type, nuts-and-bolt items dear to the icy hearts of Stan/Eval test writers. I mean a working knowledge of how the loss or malfunction of a system affects the mission and safe recovery. What is the absolute worst system to have malfunction? Play the "What would I do if this failed next?" game. (It's more fun in groups, on the ground, than in the air!)

**TRAIN SMART.** This doesn't mean squeezing one last "square filler" out of the sortie. It means the same "what if . . ." game, mentally applied to each phase of the mission.

**FLY THE AIRCRAFT.** First, last, and always. This means AIRSPEED, HEADING, ALTITUDE. No matter the distraction, **somebody has to fly the aircraft.** Even gliders need airspeed to stay aloft. Too long off heading and you won't know where you've been, much less where you're going. And to avoid a one-second deceleration to zero KIAS in the middle of granite-stuffed cloud, you must be on the right altitude. Abort low level, go around, whatever is necessary to insure you can FLY THE AIRCRAFT despite all other demands on your attention. Discuss various situations with your crew, and mention how each crewmember should help out to insure these three fundamental things are watched.

If all this seems obvious, I refer you to the preceding figures and figure 5. You've no doubt been briefed on these recent mishaps. With no prejudice to those involved, "Is this as good as we get?" The aircraft doesn't know if you're young, old, TDY, hungover, passed over, or the state of your love life. It doesn't care, either. It only knows how you fly it, and if you don't fly it right, it's likely to kill you. Fly SMART, as if your life depended on it. As a matter of fact, it does. As proof, I cite the 20 year totals.

As I leave the safety career field, probably for the last time, I'd like to have a "graduation present." A calendar year with zero class A flight mishaps in SAC would be just right. Unfortunately it is already too late for 1985, but how about next year? It's up to you.

**Maj Gary D. Rockefeller was the 96 BMW Flying Safety Officer when he wrote this article. More than 1100 of his 3900 flying hours have come in the KC-135; the B-52 has accounted for over 1700.**

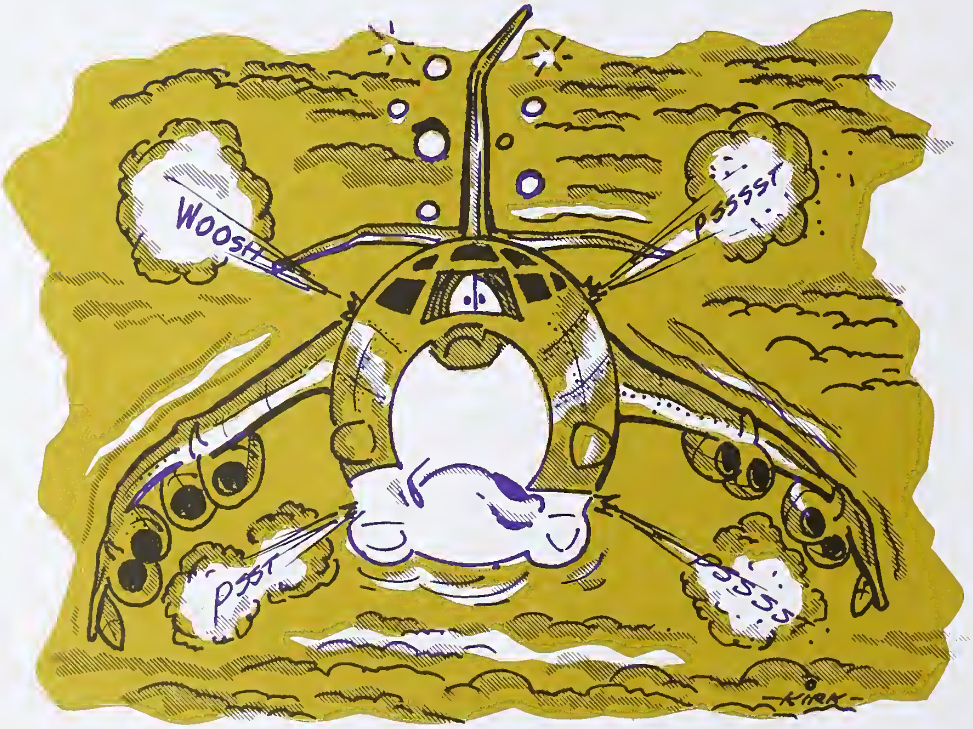
# SA
# CROSS

## FLIGHT SAFETY

### Physiological Incidents on the Rise

Over the past several years, SAC has averaged 7-8 physiological mishaps per year due to aircraft pressurization problems. However, in 1985 we have already reached that number. Here's a recent incident which reminds us of the hazards involved. An aircraft did not pressurize, but the aircraft commander elected to continue the mission (IAW regulations). Although all crewmembers were on 100% oxygen, one individual's duties required considerable movement about the aircraft which was flying at FL 180 and above.

After some 45 minutes, our industrious crewmember began experiencing the bends, requiring the mission to be terminated and a trip to the hospital. Fortunately, no lasting injury was incurred.



### How to be Unflappable

Crew distraction immediately after takeoff can lead to glaring oversights — like the flaps not being in the proper position. We received a report wherein the copilot made the takeoff and the pilot thought he had raised the flaps. The aircraft began slowing and was well out of trim. A quick instrument scan revealed the flaps going down (passing through 80 or 90 percent), the airspeed at 260 KIAS and the flap lever out of the OFF position. Ground inspection revealed both inboard flaps bent along the bottom inboard edges. In another case, with the copilot also flying, the aircraft entered the clouds shortly after takeoff and was IFR for several moments. The aircraft climbed very slowly and would not accelerate above 235 KIAS. The pilot checked engines, airbrakes, gear and potential icing, but could find no explanation. However, when the copilot told the AC he was holding abnormally high forward pressure on the yoke, the culprit was quickly found — the flaps were full down. Although three crewmembers confirmed them up, the handle had crept to the down position.

## WEAPONS SAFETY

### Is the Area Clear?

During a missile guidance set recycle, a technician placed the guidance and control radio frequency interference (RFI) shield on the environmental flap of the van. After completing the recycle, he failed to verify the flap was clear before cranking it up to the stowed position. The RFI shield was crushed.

# ETY FEED

### Safety Equipment

Two technicians were overcome by Aerozine 50 fumes while working in a missile stage compartment. Although the area was a confined space, they failed to use required safety equipment. An overnight stay in the hospital resulted — it could have been longer.

## GROUND SAFETY

### Drinking, Driving and Drowning

Three airmen were returning from a fishing trip when the driver lost control of his pickup at high speed on a sharp curve. The vehicle slid off the narrow gravel road, rolled and landed upside down in a five foot deep irrigation ditch. All three airmen drowned. Alcohol was involved.

### Tractor and Trailer

The operator of a tractor-trailer, which was overloaded by 9,000 pounds, inadvertently departed the roadway onto the shoulder. He oversteered in attempting to return to the paved surface, crossed the highway and overturned. The tractor was destroyed by fire; the trailer and its cargo suffered extensive damage. The driver escaped injury.

### There's a Reason for Spotters

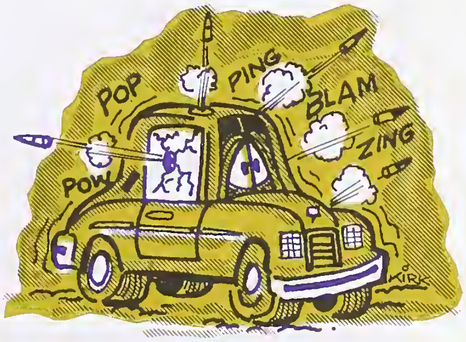
A tug with a tow bar attached was being backed without a spotter. The tow bar jack-knifed, hitting a private car parked in the wrong place. Damage to tow bar and car exceeded $2,000.00.

### Rude Awakening

The driver of a security policy vehicle ran into an Alert Force KC-135 while patrolling the ramp. Both the aircraft and vehicle sustained substantial damage.

### I Didn't Know the Gun was Loaded

An airman was playing with what he thought was an unloaded 9mm semiautomatic pistol inside a privately owned vehicle. The gun discharged and wounded the airman in the left leg. He expressed great surprise.



"POWER CONTROLS ALTITUDE WHILE PITCH CONTROLS AIRSPEED!"
"UN... SIR DON'T YOU HAVE THAT BACKWARD? DOESN'T POWER CONTROL AIRSPEED AND PITCH CONTROL ALTITUDE?"
RATES
ACE COMIX
CFIC HQ's BONEYARD AFB
CHICKEN
"NO! I SAID IT RIGHT!!"
COME ON I'LL DEMONSTRATE IN THE AIRPLANE
SLAP
STOMP
"BOZO 50, YOU'RE CLEARED FOR TAKEOFF!"
WHAT THE ·※@†@#★ ARE YOU DOING??
IDLE
PUMP
PUMP
PUMP
PUMP
"DOING JUST AS YOU SAID SIR, TRYING TO BUILD UP AIRSPEED FOR TAKEOFF!!"
HO-BOY...
PUMP
PUMP
PUMP
KIRKPATRICK

# Pitch or Power?

## That is the Question!

Capt Bob Lefevre
CFIC, Castle AFB

Most everyone has heard of Theory X, and Theory Y, and maybe even Theory Z. This discussion will examine the other end of the alphabet, Theory A and Theory B. What is Theory A and Theory B? Well, read on.

At one time or another, every pilot has confronted the pitch or power issue. In other words, what controls altitude and airspeed? Pitch or power. For the most part, this question becomes elementary and instinctive, however, every once in a while, someone appears who has yet to solve the equation. Maybe these inputs can help to clear those muddied waters or, at least, generate thoughts on the subject.

In its simplest form, the discussion will center on two thoughts, Theory A and Theory B. Theory A says: pitch controls airspeed; power controls altitude. Theory B says the reverse: pitch controls altitude; power controls airspeed. Which one do you ascribe to? Well . . .

Neither theory, by itself, is wrong. However, neither theory is always right either. Each has its own merits, and given specific conditions, will cooperate very well. But, given other circumstances, each can be shot full of holes. Only when applied together can any consensus be formed. Here's why.

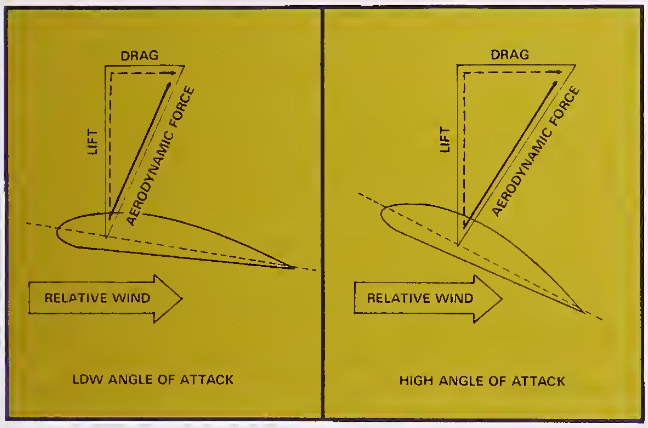
An airplane in position on the runway centerline is ready for takeoff. If Theory A were correct, pitch controls airspeed, the pilot should be able to accelerate down the runway by manipulation of the elevator. Unfortunately, no amount of yoke deflections will give this result.

So we'll shelve Theory A momentarily and examine Theory B; power controls airspeed. Suppose we're cruising along at altitude and wish to slow down. We reduce power, the airplane noses over into a shallow descent, and the airspeed goes . . . up? Wow! Now I am really confused. Let's try again with another example. Theory B says use pitch to control altitude. So we slow the aircraft to its minimum controllable airspeed and now wish to climb. Realizing that if we increase pitch any further, it will be bad news, since we'll descend, not climb. So much for Theory B.

We could go on and on, each time tailoring circumstances to disprove each theory. What is the answer?

The force that moves the airplane is thrust created by the engines. The engines create that initial force which propels the wing, which then generates lift. The airplane in position for takeoff needs power to accelerate and to climb. The aircraft in flight at minimum airspeed requires power to climb. Therefore, power ultimately controls airspeed and altitude.

If power controls both airspeed and altitude, so does pitch. A fundamental explanation that pitch controls airspeed is advanced by Wolfgang Langewiesche in his book **Stick and Rudder.** Because elevators constitute an angle of attack control, they control airspeed. For each angle of attack, a corresponding amount of induced drag is produced, as a by-product of lift. The higher the angel of attack, the greater the induced drag.



Likewise, greater drag means lower airspeed. So, by controlling angle of attack, and thus induced drag, pitch controls airspeed.

Conversely, suppose you're in level flight and wish to slow down while holding your established altitude. If you blindly rely on elevators alone, applying back pressure to decrease airspeed will generate an immediate climb. Consequently, power must be reduced along with adequate back pressure as the aircraft decelerates.

There are times when pitch or power are fixed, not subject to change, because the pilot has it where he wants it or it has reached a limit, say TRT or whatever. In a climb, power is set and remains virtually untouched except for minor refinements. Airspeed is controlled solely by pitch control. If the pilot needs to decrease airspeed, he must increase pitch with back pressure. In a power-off descent, airspeed is controlled again by pitch inputs.

Remember that the elevator is the angle of attack control and the angle of attack can be increased only to a point, the critical angle of attack, beyond which level flight ceases. Because angles of attack at critically low airspeeds are near the critical angle of attack, we can say that the pitch input at critically low airspeeds is at its maximum (or very near it). Back pressure in such a situation is therefore not an option in controlling altitude if a climb, or even a reduction of sink rate, is desired. Pitch is thus fixed. Suppose that, upon turning final approach, you find yourself on the desired glidepath but high on airspeed. Since the airplane responds immediately to elevator inputs, it is not sensible to control airspeed with elevators, as Theory A suggests. Such a tactic will yield an erratic and unprofessional approach path. First, the aircraft will climb sharply above the desired glidepath, whereupon a steep downward correction becomes necessary. Another such overshoot during descent sets the stage for a series of vertical S's as the aircraft tracks down the final approach course.

The proper technique is, first, reduce power. Then, as the airplane begins to nose over, increase back pressure as necessary. This method of control allows one to maintain a steady, straight glidepath while holding the desired airspeed. If either pitch or power is fixed, Theory A is used properly as a control technique. But when both pitch and power are available, Theory B states the best technique for precise control.

Here's how we can combine both techniques and show how the two opposing theories are interrelated:

1) With constant pitch, power controls altitude.

2) With constant power, pitch (elevators) controls airspeed but alters flightpath.

3) For a change in airspeed with a level flightpath, use power first and control the flightpath with pitch.

The effect of each control has been taken up individually, but you should realize that no single control movement provides all the control for a maneuver. To fly your aircraft effectively, you must use the controls together. This is known as coordination of controls and is vital to smooth flying. Rough, erratic use of all or any one of the controls will cause the aircraft to react accordingly, so it is important that you be able to apply pressures smoothly and correctly for graceful, efficient flight.

# Getting From Here to There . . . Fix-to-Fix

SIFC, Castle AFB

CROSS CHECK
IFC

In the realm of IFR flight, there are several methods used to define a desired route of flight on the DD Form 175. Two of the methods are covered in sufficient detail in FLIP General Planning, and won't be covered here. These include filing on the en-route airway structure (Jet or Victor), and filing direct between NAVAIDs. However, the third method, filing fix-to-fix, doesn't have readily available guidance for crew use. Because that's the method most SAC crews use to get from here to there, this article will hit the high points of fix-to-fix filing.

The actual name for the familiar fix-to-fix method is called the Degree-Distance Route Definition. All of the information that a crew needs to know can be found hiding in FAA Handbook 7110.65, **Air Traffic Control.** While the handbook is directive in nature only for air traffic controllers, it does give us the necessary rules to follow when filing Degree-Distance routes. Let's review when and how the method works.

The when of the definition is straight forward. The method is basically a military privilege, and normal SAC operations fit perfectly. 7110.65 states "the following military operations are authorized to define portions of their routing in accordance with the definition:

**1.** Airborne radar navigation . . . conducted by USAF, USN, and RAF aircraft.

**2.** Celestial navigation conducted by the USAF, USN, and RAF.

**3.** USAF . . . aircraft flight planned to operate on MTR's (military training routes)."

Now that we know when, let's look at how. The how part is also easy. For each point you file you need:

**1.** A station identifier (three letters), magnetic azimuth (radial), and distance in nautical miles (DME) from the station, i.e., XYZ180100.

**2.** NAVAIDS authorized for the route structure flown and which do not exceed the service volume limit.

**3.** A distance between the filed fixes that does not exceed 80 NM below FL 180 or 260 NM at or above FL 180.

It's the application of the how part that sometimes causes confusion. To apply step 2, you can use the radio class code listing in the IFR supplement. That will give you a facility's legal service volume limit for your filed altitude. In step 3, notice that the distance we're concerned with is "between the filed fixes." This method should not be confused with filing off airways direct "between NAVAIDs." Although both methods have a "260 NM rule" in them, they are not the same. If we were filing off airways direct, in our normal operating environment above FL 180 between two High (H) facilities, 260 NM would keep us within the service volume limits of the NAVAIDs chosen. Under the Degree-Distance Route Definition, even though we must keep the points themselves within the service volume limits of their NAVAIDs, the only requirement for filing is to keep the points within 260 NM of each other. In the most extreme case, the NAVAIDs used to define two points could be 520 NM apart. Example:

Remember when we can file using

this method? Do the word's "airborne radar navigation" or "celestial navigation" sound familiar? It's the navigator and his diligent use of the airborne navigation radar that allows us to use this method. The nav keeps us on the straight and narrow while we're between the service volume limits of the filed NAVAIDs using Degree-Distance rules. And when we fly celestial, the straight and narrow becomes the straight and wide (plus or minus 30 NM for ATC purposes).

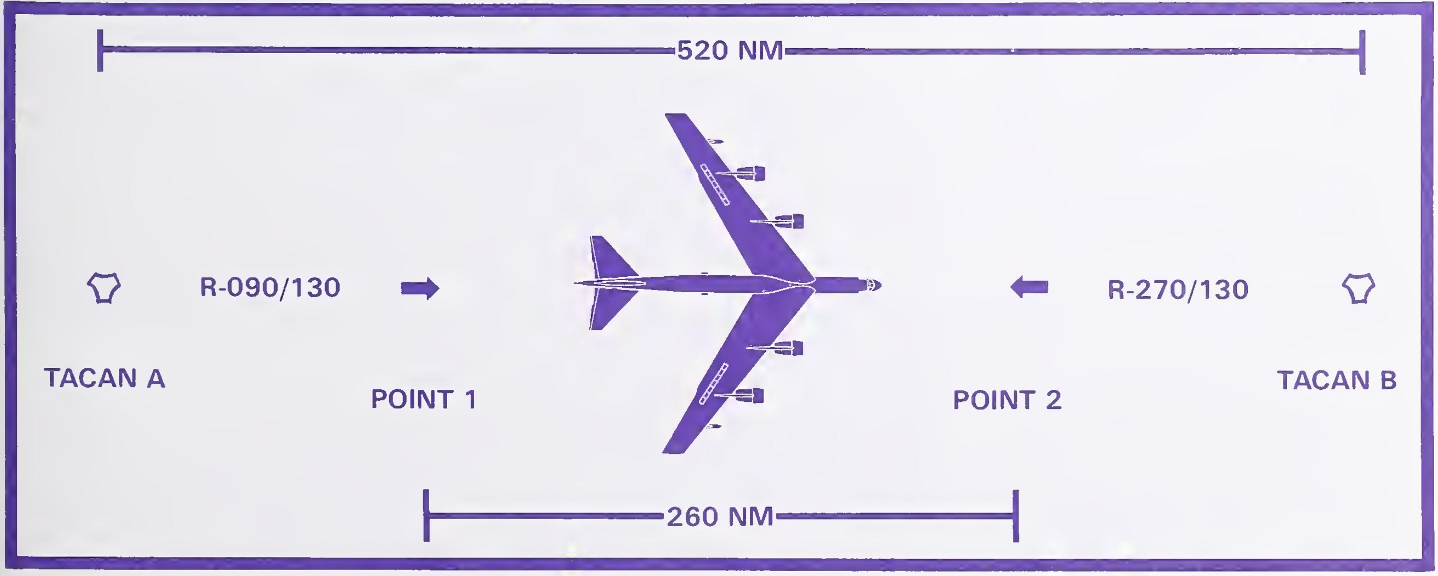
One other requirement (also echoed in SACR 55-3, Ch 4) is to file the flight plan at least two hours prior to the estimated time of departure to allow for proper handling. That's not usually a problem as most SAC crews turn in their paperwork the day prior to the flight.

Here are some things to think about when you file using this method.

**1.** The ATC computer has no way to check your route of flight. Its data base is filled with information on airways and named points, SIDs and SID transitions, low level routes, IAFs, etc. Under the Degree-Distance method it will swallow anything you care to feed it. Therefore, it's up to the crew to check for appropriate NAVAIDs, make sure the points chosen fall within the service volume area for the altitude chosen, measure the distance between the points accurately, and check for reciprocals. The ATC computer can't.

**2.** The 260 NM between points is a maximum allowable distance. There's nothing wrong with identifying an extra point, or choosing another NAVAID along your route of flight to help you remain position oriented. Most pilots make a practice of backing up the nav with a TACAN fix-to-fix to the next point. That's probably because AFR 60-16 places the responsibility for deviations squarely on the shoulders of the aircraft commander. Therefore, having some extra points plotted on the pilot's chart for this purpose is cheap insurance. You just don't have to put them on the flight plan.

That's a quick look at the highlights of the Degree-Distance Route Definition. If you're interested in all of the specifics, your local RAPCON has a copy of FAAH 7110.65 (para 4-32). Otherwise talk to your local SIFC graduate, or if you find yourself lost between here and there, try an HF phone patch to autovon 347-4571.



# An E-What?

THE CUTTING EDGE

Capt Terrence W. Craft
4315 CCTS, Vandenberg AFB

"Why do I have to sit through this boring class and then take a test that no one can pass? I know my job. Why do I have to put up with all this?"

Have you ever heard anything like that? I certainly have, and I'll bet most of my fellow EWOTs (pronounced "E-Watts," Emergency War Order Trainers) have, too. The reason you have to sit through my class is spelled out in SACR 55-45: "In critical areas involving release or withhold of nuclear weapons, there is no room for incomplete knowledge or substandard performance."

We conduct the classes to be absolutely certain that every missile combat crewmember can perform his or her job should it ever be required. And ultimately, what are we paid to do? Turn keys in support of the orders of the national command authorities.

Several years ago, a major (now colonel) told me, "There are no new problems, just new crewmembers." We've all seen the little tricks the instructors and evaluators can throw at us. But do we remember them all? Or do the new crewmembers have the benefit of our combined experience and knowledge? No, they don't.

We EWOTs conduct recurring classes to present the material crewmembers need to stay proficient. We give tests to guarantee the material is retained by the crew force.

Yes, the tests are tough. They're challenging. They require thought, good checklist discipline, and (most importantly) sound judgment. Coincidently, all these qualities are characteristic of a professional crewmember. We don't give tough tests out of spite. Quite the contrary. Test preparation, grading and retesting is not easy work, but it is necessary in the development of proficient crewmembers.

What do we do when we're not teaching (affectionately known as trying crewmembers' patience) or giving those tests (often called cruel and unusual punishment)?

One of our many jobs is to build the Emergency Action Message Books (EAMB). They don't come from SAC all color coded and tabbed. We have to make them fit the unit mission. We pick the proper forms, type in the correct information, verify that it is correct, go to reproduction, and make them into a usable EAMB. We ensure they're properly updated and current. Your EAMB is home-grown.

We also write the Master EWO Lesson Plan (MELP), the document that all your EWO training is based upon. We take procedures, techniques, command guidance, and current policy from dozens of different sources and meld them into a usable teaching tool. We update our MELP to reflect new command guidance as it's received and provide the best, most up-to-date information we possibly can. The MELP is usually a full-time job for at least one person. We have to incorporate the guidance messages we receive from SAC and the numbered air forces that haven't been included in the many SAC regulations. We include them in our MELP to pass on the changed requirements and procedures.

Additionally, we provide crewmember guidance for all those various exercises you're responsible for. We attempt to get as much information as we can so that you don't have any nasty surprises while in the middle of an exercise. We may have to go through six or seven different books to give you an idea of what will happen. The briefings you receive on the varied exercises don't just magically appear — a lot of sweat goes into them.

Further, we have very demanding duties on the battle staff. We often sit in the back room and process EWO messages for the commander. We also provide the EWO expertise the "boss" needs. We work a 24-hour shift whenever the battle staff is formed and are responsible for many of the battle staff briefings and monitoring situation status.

From your EWO concepts examinations, you may remember that we are also the alternate Positive Control Document custodians. As such, we're on call (we carry a "beeper") so the command post can contact us on a moment's notice in case of emergency.

We also go through the same inspections you do: the IG, 3901 SMES, Numbered Air Force Staff Assistance Visits (SAV), Short Sprints, and Air Division SAVs. They look at all our material to ensure training is properly conducted, documented, and that crewmembers are receiving the information they need.

Related to the tests we develop and implement we set the EWO standards for the DOTI/DOV scripts used in the missile procedures trainer (MPT). We review each script before it goes to the MPT. We insure each EWO scenario is valid, meets command standards, and has a reason for being there. We don't include scenarios just for the sake of having something to fill out a script. There is a reason for each event in every scenario.

Finally, many EWOTs are also Top Secret Control Officers (TSCO). The TSCO is responsible for every Top Secret document in the wing. He or she must have the proper paperwork, audit trail, and accounting so that every Top Secret Document can be produced on the spot. The TSCO is evaluated once a year (at least) where every TS document must be physically sighted and accounted for. If an inspector finds any discrepancies there's an immediate investigation. The above is a basic list of things we do. But despite the myriad of things we do to support the mission, our most important job is to train the crewmembers. It takes many hours and I've never seen an overpaid EWOT.

Yes, it's a tough job, but despite what you may have thought, we have not forgotten what it's like to be on crew. We've all been crew commanders and deputies and have suffered through the same training and testing. Through our experience we have come to realize that there's no room for error in any of our jobs.

**The real bottom line:** Our principal charter is to help the crewmember achieve that degree of proficiency necessary to perform a most demanding job safely, expertly and professionally.

# IMPROVE THE ODDS

## SAC TACTICS SCHOOL

**Editor's Note:** This is the first installment in a series, "Improve the Odds," to be published monthly in Combat Crew. Be sure to look for it in forthcoming issues.

The SAC Tactics School has made command history by conducting its first tactics training class at Nellis AFB, NV. Class 85-1, conducted this past January, was a mix of headquarters, numbered air force, and wing level operations, tactics, and intelligence officers. The primary purpose of this initial effort was to accomplish a full curriculum review of the tactics school's subject matter from as many different viewpoints as possible. A successful effort, the review led to several new instructional techniques that were incorporated into the curriculum for the second class, 85-2, which graduated in March 1985.

The primary purpose of the school is to train unit tacticians and combat intelligence officers and NCOs in threat recognition, proper mission planning and application of command tactics so that potential threats are countered and mission goals are achieved. The school will also be the command focal point for the development and formal training of combat tactics. The evolving commitments of the Strategic Air Command dictate less reliance on "black line" and "bold print" mentality and greater emphasis on flexible response to changing threats.

During initial development the charter of the program was expanded to focus on the development of a unit tactics team. To accomplish this task, the school integrated into its training program the Combat Intelligence (INZ), Wing Tactics Officers (DONBT), and other selected wing personnel (DONP, DOXE, DONB, DONBW). For Combat Intelligence Officers and NCOs, the impact of this step is significant. By command direction, INZ is a full partner in the development of a unit tactics training program. A good working relationship between operations and intelligence is critical to the unit program. The school emphasizes this relationship through a joint training approach.

To provide the necessary training for the wing tactician, intelligence officers and NCOs the instructor cadre represents a wide and varied background from the operations and intelligence communities. The three week academic program reflects this broad spectrum of experience and education.

Week one is devoted to Soviet threat awareness, specifically, the threat to SAC forces. This week concentrates heavily on employment of the Soviet Integrated Air Defense System (IADS), emphasizing applicable capabilities and limitations of component systems. Week two concentrates on SAC bomber employment and classes are provided on bomber defensive and offensive systems, crew coordination, low level operation, basic defensive maneuvering, targeting and weaponeering, attrition analysis and maritime operations. Week three concludes the program by focusing on the Blue-Gray threat, maritime operations, joint operations, tactical doctrine and unit tactics training — the main thrust of the course.

The school is also tasked with the development of new tactics. SAC maritime operations presented the first opportunity to develop new tactics and demonstrate how the school fits into the process. Several school staff members have expertise in U.S. and Soviet naval operations. This knowledge was put to use last December when problems were noted with a current Harpoon employment tactic. Harpoon employment was studied and a new tactic was developed streamlining the present procedure. This new Harpoon tactic was accepted by HQ SAC/Current Operations and forwarded to 2nd Fleet for evaluation in naval exercises later this year. Once the evaluation is completed the tactic will be refined and published in SAC TAC Doctrine. This is only one of several areas of maritime operations in which the school is trying to improve command interface with the Navy.

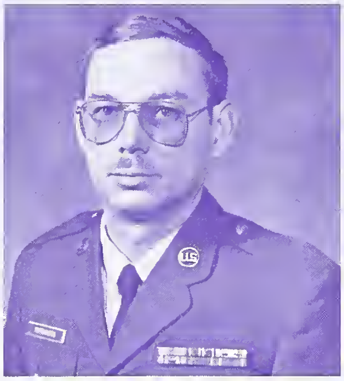
The creation of a Tactics School for SAC was a long time in coming and it will be some time before the program is perfected. However, it shows great promise for more realistic tactics training. In a dynamic combat environment aircrews must be given the knowledge and skills to beat the threat. To this end, unit tactics teams, using this course as a foundation, will be tasked to provide in-house tactics training programs. With your support of this command initiative, the ability of SAC aircrews to get the job done will be greatly enhanced.

# PROFESSIONAL PERFORMERS

## Aircraft Maintenance

SrA Russell E. Young, 509 OMS, Pease AFB, is SAC's Maintenance Airman of the Month. As a KC-135A crew chief, Amn Young consistently demonstrates superior technical skill, diligence and devotion to duty. His ability to perform a myriad of required maintenance actions in an efficient, expeditious manner has earned him the respect of contemporaries and supervisors alike. Demonstrating that he is a leader of the highest caliber, a waiver of the crew chief grade restriction was approved and Amn Young was awarded his own aircraft and the distinction of being one of the few senior airmen in SAC selected to crew chief an Air Force tanker. Amn Young has received numerous letters of commendation from flight crews for his performance as crew chief and for the ever-outstanding condition of his aircraft. Letters have underscored his well-known and respected indepth knowledge of the KC-135 aircraft and its subsystems. His superior efforts were again recognized when he and his aircraft were selected to represent the 509th BMW in the SAC Bombing and Navigation Competition. His continued hard work and professional qualities were again proven with 100% on time takeoffs during the competition. In addition to his normal duties, Amn Young has conducted on the job training for newly assigned airmen and continually produces outstanding results as proven by their quality control evaluations and their minimum time upgrade training achievements.

## Munitions Maintenance



TSgt Randall J. Hutchison, 410 MMS, K. I. Sawyer AFB, is the SAC Munitions Maintenance Airman of the Month.

As NCOIC of the conventional munitions section, Sgt Hutchison has displayed exceptional management ability and technical competence. His improvements in work methods, both in the shop and on the flightline, have resulted in better storage procedures, an improved conventional stockpile, and identification and recommendations to alleviate technical order deficiencies associated with the ALA-17 flare system. He approaches every task with outstanding drive and aggressiveness, and as a result, has turned his section into the showcase of the squadron. While performing as the 410 BMW Explosive Safety NCO, he established a comprehensive and effective explosive safety program by rewriting and combining several explosive safety MOIs for the wing and the squadron. His dedicated performance was recognized by excellent ratings for the explosive safety program from the 8th Air Force Staff Assistance Visit in June 1984 and the SAC IG in November 1984. Sgt Hutchison's accomplishments have proven to be invaluable in his section, the 410 BMW, and the command.

## Missile Maintenance

SSgt James W. Bolton, Jr., 91st SMW, Minot AFB, is the SAC ICBM Maintenance Airman of the Month. Assigned to the team training branch, Sgt Bolton received an excellent technical instructor proficiency evaluation from Quality Control. His superior instructional skills resulted in his students receiving a pass rate of 95% for 1984. His section was recognized as the Trainer Hardware Section of the Month for August 1984. Additionally, his section was identified as the "best seen this cycle" by the SAC IG and 15th Air Force. Sgt Bolton also researched and developed a checklist for the trainer hardware program, and developed and implemented a program to qualify technicians on a series of hazardous maintenance tasks. He was responsible for ensuring 83 lesson plans were technically accurate and in the ISD format five months before the mandated deadline. His significant contributions to his unit resulted in the Team Training Branch winning the Air Force Association Outstanding Achievement Award for 1984.

## Missile Crew

Crew E-020, consisting of Capt Randall W. Buddish, MCCC, and 2Lt Wilson D. Lannom, Jr., DMCCC, 321 SMW, Grand Forks AFB, is SAC's Missile Crew of the Month.

Capt Buddish and Lt Lannom were on alert at an LCF when a severe winter storm moved into their flight area producing blizzard and total whiteout conditions. Two female civilians arrived at the gate requesting shelter from the storm. The crew allowed entry and directed the facility manager and stranded crewmembers to escort the civilians while they were on site. Weather conditions deteriorated further, so the crew allowed the civilians to spend the night on site and sleep in the Night Alarm Response Team's (ART's) room. Their next of kin as well as appropriate base agencies were notified. The Night ART's room was equipped with barred windows and the crew directed the Night ART to post a guard at the door. The civilians departed the site the next morning when the storm subsided.

Shortly before the storm the previous day, contractors completed their work and departed the site with their heavy equipment in a convoy. About three miles from site, they experienced extreme whiteout conditions causing the lead vehicle transporting a crane to stop abruptly. A collision resulted causing damage to three vehicles. Capt Buddish and Lt Lannom notified the appropriate agencies and a tow truck was dispatched to clear the damage and return the passengers to the launch control facility. During the same time frame, the crew was notified that a camper team providing security at launch facility Bravo-15 was out of their propane heating fuel and was receiving only a small amount of heat from their camper vehicle. The crew quickly recognized the gravity of this life-threatening situation and in accordance with established emergency procedures ordered the security personnel to the launch equipment building for warmth. They instructed the security personnel to make regular security checks topside. After coordinating with the appropriate base agencies, the crew gave the off-duty facility manager permission to lead the ART team to the site with the front-end loader. The convoy was successful in reaching launch facility Bravo-15. They reestablished normal site security and provided heating fuel for the camper vehicle.

The prompt and decisive actions of Capt Buddish and Lt Lannom in responding to emergency situations during a severe winter storm prevented the possible loss of life of civilian and Air Force personnel.

## Heads-Up Flying Club

Recently, Maj Ron Blatt, 9 SRW, Beale AFB, was flying a local training flight in a U-2. Approaching the runway for a normal touch and go landing, his aircraft experienced rapid, uncommanded, full nose-up trim. He immediately initiated a go-around from only ten feet above the runway. This condition demanded extreme forward yoke force and an absolute minimum flying airspeed — a truly fatiguing situation. Initially, hydraulic pressure remained steady; however, tower personnel reported fluid trailing behind the aircraft. As the extreme forward force began to tire him rapidly, Maj Blatt configured the U-2 for a normal landing. He selected full flaps and approached the landing threshold. The approach required him to make pitch adjustments by varying the amount of forward pressure on the yoke at a time when his arms were so tired he could barely maintain enough force on the yoke to prevent a pitch-up. The landing was flawless and the aircraft was stopped just as the hydraulic pressure dropped to zero. Postflight inspection revealed a disintegrated hydraulic line coupler leading to the elevator trim motor. The entire hydraulic system was depleted through the coupler as hydraulic fluid sprayed out the back of the aircraft. Maj Blatt's quick thinking and action resulted in the safe recovery of the aircraft and demonstrates his truly outstanding airmanship.

# DEJA VU:

## A Great Place to be When Something Unusual Happens

Capt Arthur C. Deekens
911 AREFS, Seymour Johnson AFB

*The conversation goes something like this:*

**NAV:** *Hey pilot, what's our mission look like for Friday?*

**PILOT:** *Well, let's see. We have a B-52 on AR6, nav leg and then return for one full stop.*

**NAV:** *Super — we'll be done mission planning by noon. I need to polish up on my golf game.*

**PILOT:** *Yeah — I wish I could join you but I've got some work to do around the house. Remind me to sign us up for the golf tournament next week.*

Sound familiar? If it is, you may be setting yourself up for disaster. We, as crewmembers, often neglect our job of mission planning in exchange for leisure time and it sometimes leaves us ill-prepared for contingencies that can occur during a mission. The title of this article comes from a French phrase meaning "already seen," and it's certainly a great place to be when your mission fails to go as planned. Before you walk out the door after logging 2.3 hours of mission planning time, let me take a moment to fill you in on how that "typical mission" may go.

For example, what if you take off only to discover the receiver canceled, and you're stuck with 60,000 pounds of JP-4 to burn off with no nav leg scheduled? One option is to fly a nav leg followed by transition. Sounds great, but what route will you fly? Does your nav have a hip pocket nav leg available? How will you refile in the air? And can you do transition at 85°F, 210,000 pounds gross and a PA of +500? All these things should be considered, and I can't think of a better place than in the air-conditioned comfort of a SAC mission planning room.

Better yet, what happens if the "queen of the fleet" you are scheduled to fly abdicates and you are faced with a quick aircraft change and a late takeoff? Of course there's the "push it to the firewall" option to make your ARCT but Murphy's Law generally won't allow that to work and you're left swinging. Another option is to proceed directly to the ARCP. However, don't forget to consider whether or not you will fly through that restricted area just waiting to slap you with a violation. (Or an artillery range that may just be hot!)

Once you are airborne, don't think for a moment that Murphy will let you alone. It seems like it is only then that the receiver decides to break and you are left with a slipped CT of one to two hours. Your first thought may be to call the **"Handy Man"** sitting at the command post console and ask him what to do. You would be more well received, however, if you have a well thought out plan ready for him to coordinate with scheduling and the DO. You might suggest that you plan to fly your scheduled nav leg first and then set up for refueling (another reason for the nav to have that hip pocket nav leg stashed away). That's fine if the timing works out; if not, about your only option is to hold at the ARCP until the receiver gets fixed or cancels. If fuel becomes a problem, one consideration might be to slow to endurance airspeed in the orbit. (We know, you're already there for energy conservation purposes.) Wouldn't it be nice to have all of those options neatly organized in your head and fresh from the previous day's mission planning so that you have a plan when your mission falls apart the moment you place the gear handle up?

Another question might arise in the orbit area: "How proficient am I in alternate rendezvous procedures?" Although we would like to believe that every receiver will always depart the IP on time and be on centerline so that the tanker rolls out 3 NM directly in front, anybody that's graduated from CCTS at Castle knows that this may not be the case. The time you don't plan for using a common TACAN will be the time you need it. I can almost guarantee that if you attempt to devise a plan in the air without first thinking it through on the ground you can find yourself so far behind the airplane that you will be finishing the Preparation for Contact checklist when the receiver departs the boom at EAR.

Once you complete the rendezvous you might think the fun is over and this hectic mission is finally going to start settling down. Guess again — Murphy's got another one for you! The weather forecast west of track ends up on centerline and there are three thunderstorms with tops of 45,000 feet between the CP and EAR. You are now faced with some interesting decisions. You can use the clear part of the track, coordinate a move to another track or even play the game of "Create-a-track," to name a few options. To provide for the proper visibility during rendezvous closure, you might also consider climbing or descending to a clear area, provided the clouds are layered and center gives you the clearance.

Had enough? Not on your life! There's yet the grand finale to come — the aircraft inflight emergency. Consider the following: you are refueling a C-141 at FL 290 on track AR XX above an overcast when, all of a sudden, suffocating electrical fumes pour into the cockpit from an unknown source making instrument viewing difficult, not to mention breathing. Question: do you know where your closest abort base is? Would you consider using your receiver for assistance? Or, what if the receiver has an emergency and requires your assistance? Certainly, situations like this are remote, but thinking sample problems through on the ground will fuel that sixth sense that hangs with you in the air through thick and thin and, miraculously, will allow you to bring a near hopeless disaster safely back to the parking stub. Remember: that problem you said would **"never happen to me"** is waiting around the corner.

One final subject I would like to cover is "crunch" points. Unfortunately, countless aircraft accidents have been attributed to task saturation. The real kicker here is that it doesn't have to happen; often problems such as these can be resolved by ten to 15 extra minutes in the mission planning room. Topics such as how to run the Post AR Checklist, Descent Checklist, brief the approach and configure for landing in 15 minutes need to be covered on the ground. After all, how many times have you unexpectedly heard over the radio "Tank 50, you're cleared to Podunk intersection" only to hear the copilot let out an unnerving shriek and commence to turn the cockpit into a collage of maps and approach plates. There is a way out: preparation!

Am I suggesting that crews convene a 12 hour closed door panel discussion to prepare for every mission? No. I'm just suggesting that crews need to take a more detailed look at their missions on mission planning days to insure that all bases are covered and that some of the typical problem areas have been thought through. Most missions (if not all) seldom go as planned and the crew that covers the most bases will be the one that shines when contingencies occur. After all, **"Deja Vu"** is a nice place to be when the forecast sterling weather takes a raincheck, the queen of the fleet you're flying begins to remind you of your last EP simulator ride, or that unscheduled crew appears wearing the skull and crossbone scarf with pad and pencil in hand.

# Charting A New Course

HQ SAC/DOT

While flying low level on an IR route have you ever thought that your life may well depend on the quality of the chart you have in front of you? Do you know how to interpret every piece of information that is depicted? Are you familiar with chart limitations and what isn't displayed? Old questions, yes, but more important than ever. These and similar concerns are behind the recent change which now requires the navigator to use a TPC during low level flying operations. Thus both the operational navigational chart (ONC) and the tactical pilotage chart (TPC) are to be used by the nav team to perform the critical job of low level navigation. Let's take a closer look at these charts to review the advantages and shortcomings of each and look ahead toward efforts to define the chart of the future.

While the ONC has been the standard by which navigators have flown for years, it does not contain all the information necessary to successfully fly at low terrain avoidance (TA) altitudes. Its 1000 foot contour interval does not permit the depiction of an abrupt terrain feature that rises less than 1000 feet, or if it is depicted, it may be indicated by a sole contour line, which may mislead a crewmember as to the nature of the obstacle. In summary, the ONC's scale of one to one million (1:1,000,000) does not permit depiction of all the features which the reduced radar scope range during low level operations may require. That leads us to the TPC.

The expanded TPC scale of one to 500,000 (1:500,000) allows more detail and thus permits closer correlation of the chart to the radar scope. For example, with radar line of sight range reduced at low level, requiring reduced scope ranges, and the OAS radar scope is configured in 25 NM range normal TA presentation, the radar scope and the TPC chart reflect a one to one scale relationship. The detail on the chart is very helpful for interpreting the detail on the scope. The expanded scale also permits more reliable terrain information.

TPC terrain depiction is also enhanced by the 500 foot contour interval. Some terrain features which are not displayed or are imprecisely displayed on the ONC, are depicted well on the TPC chart, especially abrupt terrain features because of the increased groupings of contour lines. Having these features readily available to the navigator, especially at night when the copilot's vision both inside and outside the cockpit is restricted, should significantly increase flight safety.

Conversely, given the greater information available on the TPC, it is essential not to become engrossed reading the chart and neglect more critical duties such as visually clearing the aircraft, monitoring terrain on radar, navigating on radar and calling turn points and IFR altitudes. The chart is simply an aid to navigation. No chart will replace good crew procedures or air sense — they serve as a reminder in the air of what was studied indepth on the ground.

During the mission planning phase, the pilot and nav teams should use every available chart, whether ONC, TPC, JOG, FLIP or what have you, to become intimately familiar with all facets of the planned low altitude environment. That will greatly reduce the inflight workload and allow more attention to visual and radar cues. This is especially important for night terrain avoidance flight in mountainous regions. The radar navigator must constantly monitor the radar scope and the EVS display. The pilot must use the terrain trace and the radar altimeter as well as all primary flight instruments to insure safe flight. The copilot is responsible for ensuring visual cues outside the aircraft crosscheck with the flight instruments. The navigator, being the pulse of the crew, must provide vital information, to include the elevation of all significant terrain. This makes the nav the logical person to utilize the detail on the TPC and that's why he was selected for this duty.

In conclusion, the fact remains that none of the currently available charts are ideal for B-52 low altitude flying. The TPC lacks the shading detail available from the ONC. The ONC lacks some of the terrain information available on the TPC. Because of these deficiencies, the headquarters is involved in an extensive effort to define the chart of the future. Many changes in both the face and nature of navigation are in store. An automated Combat Mission Folder (ACMF), digitized screen (CRT) displayed charts, and three dimensional displays are in the research stage, and the time has come to determine the detail of these displays. The chart or display of the future could be of any desired scale, could have variable contour intervals, and offer any number of shading schemes. With the navigator becoming more involved with the TPC, he is ideally suited to compare chart characteristics and determine what qualities are most helpful to the SAC combat crewmember.

So, keep careful notes. You B-52 crews will soon see a questionnaire by which you can voice which chart characteristics you believe provide the best information. Questionnaire responses **will be used** to help quantify the needs of the combat crewmember and to shape the chart of the future for SAC's demanding low level missions.

# SAC SAFETY SCREEN

The SAC Safety Screen is an honor roll of SAC's most professional crews. To gain listing on the Screen, crew members must be nominated by their unit commanders and meet high selection criteria of experience in their aircraft or missile system *IAW AFR 127-2/SS1.*

**78 AREFS, Barksdale Crew:** IP Capt Billy A Lewis, P Capt William D. Robertson, CP Capt Alexander J Marchand, FE MSgt Jimmy C Harvell, BO MSgt Gerald E Gibbs

**62 BMS, Barksdale Crew R-18:** P Capt Roy M Conrad, CP 1Lt Richard W Fox, Jr, RN Capt Robert D Davis III, N 1Lt Joseph P Wolf, EWO Capt Daniel D Baena, G A1C Eric L Schwartz

**71 AREFS, Barksdale Crew R-112:** MP Capt Robin L Sanders, MC 1Lt Timothy W Harris, MN 1Lt Richard M Nehls, IB SSgt Kenneth P Fabiny

**71 AREFS, Barksdale Crew R-125:** MP Capt Mickey D Young, MC 1Lt Michael K Lane, MN 1Lt Jose H Davison, IB SSgt William H Fordyce

**32 AREFS, Barksdale KC-10 Crew:** AC Maj Daniel P Ballard, P Capt John L Furr, CP Capt Charles D Braymer, CP Capt Gary D Burg, IE TSgt Frank L Groves, E SSgt Paul G Havery, IBO TSgt Mark G Kline, BO TSgt Dave K Fruge

**596 BMS, Barksdale Crew E-81:** AC Capt Wendell L Griffin, CP 1Lt Timothy W Stanfill, RN Capt Mark W Rettele, N 1Lt Paul L Yarian, EWO 1Lt George W Perkins, DAG SSgt Alan W Turney

**7 AREFS, Carswell Crew E-114:** AC Capt Joel S Smith, CP 1Lt Jeffrey J Bassaline, N 1Lt Phillip M Carr, BO A1C Robert A Brisson

**9 BMS, Carswell Crew E-72:** AC Capt Terry M Gruber, CP 1Lt Gerrard A Chiarolanza, RN Capt Edwin E Valla, N 1Lt Duke E Huston, EW Capt William K Reed, G TSgt Brent A Wood

**20 BMS, Carswell Crew E-14:** AC Capt Gavin G Prunty, CP 1Lt Timothy B Eilts, RN Capt Robert C Gilbert, N 1Lt Jose M Marull, G SSgt James A Meek

**306 AREFS, Altus Crew S-150:** IP Maj William E Douthit Jr, CP 1Lt Robert W Bruton, IN Capt Kathryn R Doan, N Capt Jett R Taylor, IBO TSgt Howell S Swilling

**11 AREFS, Altus Crew R-114:** IP Capt Jeffrey P Hightaian, CP 2Lt William R Lehrmann, N 1Lt John C Young, BO A1C Douglas C Garrett

**41 AREFS, Griffiss Crew R-104:** P 1Lt David O Norton, CP 1Lt Charles J Englert, N 1Lt Robert R Baker Jr, BO SSgt George Reschetnikow

**9 SRW, Beale Crew E-04:** P Maj James M Jiggens, RSO Maj Joseph J McCue

**9 SRW, Beale Crew E-06:** P Maj Joseph E Matthews, RSO Capt Douglas C Osterheld

**9 SRW, Beale Crew E-07:** P Capt John E Madison, RSO Maj William D Orcutt

**9 SRW, Beale Crew E-08:** P Maj Raymond E Yeilding, RSO Maj Stephan M Lee

**381 SMW, McConnell Crew E-024:** MCCC Capt Peter M Tinebra, DMCCC 1Lt Joe W Barthell, MSAT SrA Gregory A Webb, MFT A1C Douglas A Stairhime

**351 SMW, Whiteman Crew E-012:** MCCC 1Lt Joseph M McWilliams, DMCCC 2Lt Theron H Crouch

**90 SMW, F E Warren Crew R-069/E-181A:** MCCC Capt David Allen, DMCCC 2Lt Robert Gibson

**341 SMW, Malmstrom Crew R-011:** MCCC 1Lt Annunziato Misurelli, DMCCC 2Lt Daniel Commons

**91 SMW, Minot Crew R-111:** MCCC 1Lt Robin Williams, DMCCC 1Lt Jose Delgado

**44 SMW, Ellsworth Crew R-181:** MCCC Capt Louis Riva, DMCCC 2Lt Jorge Baez

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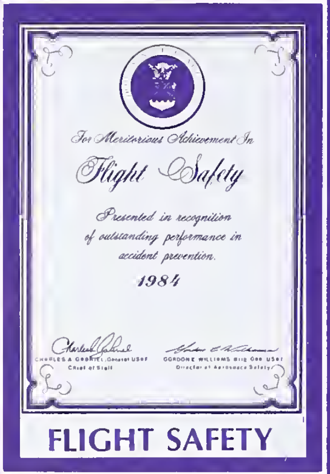
# 1984 SAC AWARD WINNERS



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Flight Safety

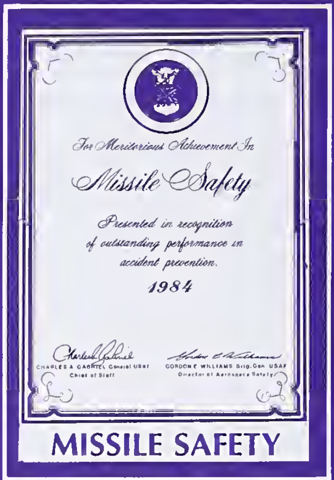
Presented in recognition
of outstanding performance in
accident prevention.

1984

CHARLES A. GABRIEL, General USAF
Chief of Staff

GORDON E. WILLIAMS, Brig Gen USAF
Director of Aerospace Safety

FLIGHT SAFETY



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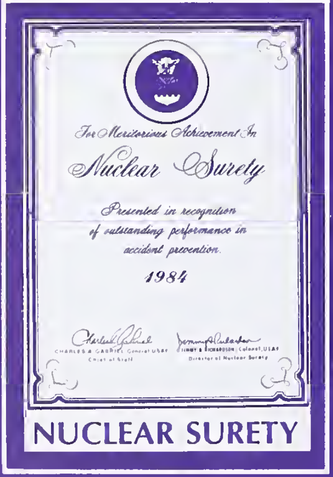
Director of Aerospace Safety

MISSILE SAFETY



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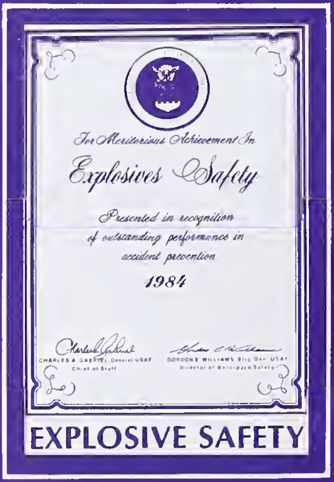
1984

CHARLES A. GABRIEL, General USAF
Chief of Staff

JIMMY [illegible] RICHARDSON, Colonel, USAF
Director of Nuclear Surety

NUCLEAR SURETY



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Explosives Safety

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CHARLES A. GABRIEL, General USAF
Chief of Staff

GORDON E. WILLIAMS, Brig Gen USAF
Director of Aerospace Safety

EXPLOSIVE SAFETY

FLARE

## FLYING SAFETY

6th Strategic Wing
93d Bombardment Wing
306th Strategic Wing
319th Bombardment Wing

## MISSILE SAFETY

1st Strategic Aerospace Division
28th Bombardment Wing
44th Strategic Missile Wing
308th Strategic Missile Wing
351st Strategic Missile Wing
379th Bombardment Wing

## EXPLOSIVES SAFETY

2d Bombardment Wing
97th Bombardment Wing
509th Bombardment Wing

## NUCLEAR SURETY

90th Strategic Missile Wing
96th Bombardment Wing
351st Strategic Missile Wing
4235th Strategic Training Squadron